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AUTHOR Van Horn-Christopher, Doris A.
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ABSTRACT

A teacher was hired to conduct onsite training and to document the process of training first-line supervisors in a food-processing plant to improve product output and control product shortage through computers. The method of instruction was the responsibility of both the teacher and the learners, as the teacher learned plant jargon and the learners learned computers as they applied to their jobs. The "real work" world was close by if further observation was necessary to clarify a particular issue. Both the trainer and the students were required to adapt, accept, and change their roles as new situations arose in the learning and problem-solving process. The teacher discovered that the learners caught on quickly because they were learning information that could be applied immediately to their jobs. The key to the learning process was commitment--the workers were the keepers of the knowledge and techniques and all they were doing was transferring their knowledge to a new medium (electronic) that would make their jobs more efficient and productive and provide more accurate control data for accounting purposes. The classroom training was centered around introducing exercises and problems that were directly applicable to what they were doing, analyzing problems they were encountering on the production lines, and evaluating actual data from previous days' production activities. Each week the students' knowledge increased dramatically as they brought back to the classroom the successes and failures of implementing the previous classes' ideas and suggestions and focused on problem solving and discussions of what worked and what needed modification. The process was successful, with both trainer and learners learning new knowledge and the trainer newly appreciative of the ease and speed of onsite, experience-based learning. (KC)

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THE SHADOWING PROCESS: A COLLABORATIVE VENTURE BETWEEN EDUCATION AND INDUSTRY

SPC, JIT, QC, QA, WORLD-CLASS MANUFACTURING--Do these acronyms sound familiar? The terms SPC (Statistical Process Control), JIT (Just-in-Time inventory control), QC (Quality Control), QA (Quality Assurance), and World-Class Manufacturing were all basically foreign to me the first time I heard them. If I had had the opportunity to have heard these terms in a traditional classroom, I could have asked the professor for clarification as to their intended meaning or looked them up in the textbook and/or handouts. Yet, in a traditional classroom those terms would have still remained abstract concepts because no concrete application for these terms would have taken place in a traditional classroom.

On-site Training:

However, my first exposure with these buzzwords were when they were being tossed about in a food processing setting by supervisors and workers who were undergoing experimental automation testing to improve product output and control product shortage. I was hired as a technical writer whose primary responsibility was to document the processes and outcomes of the undertaking of the company to fully automate the production lines. These production lines were to be fully automated with computers and software programs which would enable workers to solve problems and make production processing adjustments as they arose.

The training class was conducted in an on-site food processing conference room which was adapted to fit the needs and practices of an existing organizational structure. Those methods

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techniques, and materials taught so readily in a traditional classroom had to be tailor-designed to fit the existing situation. The instruciton focused on real issues and problems the workers faced in their working environment. Different ideas were introduced and through trial-and-error these ideas were either implemented or discarded.

This method of instruction became the responsibility of both the trainer and the learner. At times during the course of the training, the trainer became the learner and the learner became the trainer. This sharing of information was necessary to attain the desired results and outcomes. The methods used in such a setting were based on andragogical assumptions about adults. According to Knowles:

1. Mature people have moved from being dependent to being self-directed.
2. Their experience is part of their self-concept, and they draw on it as a resource for learning.
3. Their interests are based on the stage they have reached in life and motivate them in their learning.
4. Their demand is for immediate application for their learning.[1]

Changing Role of Teacher/Learner:

This on-site classroom structure required both the trainer and the students to be able to adapt, accept, and change their roles as new situations arose in the initial learning, problem-solving, and technology stages. The "real work world" was close by if further observation was deemed necessary to clarify a particular issue at hand. How different this approach was from giving students a method or case problem which may have no relevance or applicability

for their workplace. "Companies gripe that most programs rarely lead directly to results on the job. That's why several major corporations, such as GE and Motorola, Inc., have extensive classrooms of their own." [2]

Adapting to Change:

I soon learned that I had to be flexible to learning new knowledge and skills in order to adequately perform the job I was hired to do--document the total evolutional process of implementing a cycle of events which would lead to successful outcomes in a food processing setting. First-line supervisors, those supervisors who worked directly with the laborers, would be taught statistical process control measures beginning with basic math on through more complex mathematical formulas and statistics. These supervisors would also be taught introduction to computers, introduction to dos, spreadsheet applications and graphing, dBase, etc.

Accelerated Learning Outcomes:

My first reaction was one of absolute doubt. How could these workers learn in approximately five to ten weeks, for two hours a day, two days a week, enough information to successfully implement their training at their work setting? My next reaction was, how could I successfully document the process when I had no exposure to such an environment and the jargon used was completely foreign to me? However, it only took two sessions for both of those doubts to be eradicated. I soon discovered how quickly the learners caught on because they were learning information which would be immediately applicable to their jobs.

Applicable Knowledge Transference:

The workers brought with them to the learning sessions an enthusiasm about acquiring "active, useful" learning "nuggets of information." The learners also felt a sense of immediacy in wanting to apply their "newfound" knowledge to an automated process. This was the key to the learning process--commitment. The workers were the keepers of the knowledge and techniques and all they were doing was transferring their knowledge to a new medium (electronic) which would make their jobs more efficient and productive and provide more accurate control data for accounting purposes. Jane L. David (1991:39) summarized this process by stating:

> Thus curriculum and instruction must change from an emphasis on isolated facts, skills, and coverage to a focus on integrated content, on the application of skills, and on the development of conceptual understanding. Teaching must change from dispensing information and rewarding right answers to creating activities that engage students' minds and present complex problems with multiple solutions.[3]

The classroom training was centered around introducing exercises and problems which were directly applicable to what they were doing, analyzing problems they were encountering on the production lines, and evaluating actual data from previous days production activities. These "real work" exercises were used to calculate data and to solve problems. "The course must offer what they can use, and if it does not, they will feel cheated. We as teachers must make the assignments real."[4]

The Teaching/Learning Site:

The other unique quality about this training program was the location of the classroom. The classroom was brought to the worker--an on-site classroom teaching concepts and addressing problems and offering solutions where it was happening--in the workplace. The trainer was there on-site to observe production methods before and after the classroom setting. By doing this the trainer was better able to understand the entire production process and the trouble areas the workers discussed by having been exposed to direct observation. The workers, at different stages of the production process, were able to exchange ideas, suggestions, and concerns about each of the areas experienced as never before. This sharing of ideas and information also led to a better understanding of what possible measures needed to be taken to improve productivity in terms of human behaviors as well as technological implementations.

> The current focus on procedures and narrow outcomes must change to a focus on results that reflect valued learning goals. This shift requires the development of new kinds of assessment instruments that measure the kinds of thinking and problem-solving skills that are the desired outcomes for students. Today, we are asking these teachers to stop teaching students isolated facts, to stop emphasizing rote learning, and to stop covering material and preparing for multiple-choice tests. Instead, we are asking them to start teaching students how to apply skills, how to understand concepts and solve problems, how to work collaboratively, and how to take responsibility for learning. In other words, we want

> teachers to give students the skills they will need to function in the work force and society.[5]

Successful Training--Trial-and-Error Approach:

Each week the students grew by leaps and bounds as they brought back to the classroom the successes and failures of implementing the previous classes' ideas and suggestions. "The attitudes and atmosphere inherent in an experience based learning environment attempts to create and perpetuate a learning approach where participants can use their experience to test the concepts and feedback ideas offered by others."[6] Experiential learning is defined by R. Wayne Pace as "instructional situations in which primary emphasis is placed upon learning from your own experience."[7] In education, we many times focus on **one** concept which leads to a successful outcome in a classroom situation but may not provide enough experience to be brought from outside sources to show how those concepts can be used in various situations.

Sessions were devoted to problem-solving and discussion of what process worked, what process needed modification, and what process needed to be eliminated. The on-site classroom represented concrete teaching at its best. The students were not frustrated over abstract concepts that did not seem to apply to the learning process. The students worked closely together as a team

because they could see that it would take a concerted effort on all their parts to improve the production process.

Experience-based Learning Process:

The process necessary to develop an experience based learning approach includes the following:

1. Initiate a climate for learning
2. Restructure the psychological and physical setting
3. Create conditions for change
4. Encourage mutual problem-solving
5. Associate knowledge to practice[8]

The approach to the course was, as mentioned, one of experience based learning. The focus of such an approach fostered trust, openness, and sincere feedback. Much of the trainer's time was spent monitoring the group process and encouraging the following attitudes:

1. A willingness to become involved
2. A healthy group atmosphere
3. A productive climate
4. A positive relationship with the trainer[9]

A few of the students took a lackadaisical approach to the training and as typical students allowed others to carry their weight for them. However, as the weeks went by, I discovered that those classified as "lackadaisical" were only acting indifferent to the process because they feared others would discover they were still somewhat fearful of the technology.

Conclusion:

As the weeks progressed, I developed a wealth of information I might not have had the opportunity to learn. Before the documentation of the training process began, I had a couple of tours of the plant facilities so I would better understand what was

discussed during the training sessions I documented. Abstract terms and concepts also become clearer for me by direct observation. My own knowledge of dBase, spreadsheet applications, and computer applications, as well as statistics was broadened by being exposed to new procedures and techniques in the food manufacturing process. The teaching techniques were directly applicable to measurable immediate outcomes. Time was crucial in producing immediate effective job-related behaviors so only those concepts directly related to the production process were addressed, which were many.

My first reaction to what I termed "sporadic teaching" was one of astonishment. "How could one spend so little time on a particular concept (spreadsheet applications) before moving on to the next concept?" I thought. However, my fears were quickly overcome when I saw how quickly the students seemed to understand what was taking place, and I frequently observed some students moving ahead of the trainer. "It is clearly harder to do something new and different than to continue doing the same thing, people need an occasion to change--a reason for taking on something more difficult."[10]

This on-site classroom was directed teaching at its best. The workers were not given release time to participate in the project. Two sessions were offered--one session for the day shift and one session for the night shift. Both shifts had to schedule this class activity on their own time. The day shift spent two hours

after work in the classroom and the night shift spent two hours before work in the classroom.

The project proved to be so successful that other satellite plants of Tyson Foods also requested training for their supervisors. I feel I benefitted the most from the experience because I acquired an applicable knowledge of the food processing industry that might not have transpired otherwise. Also, the on-site students proved to me once again that the teaching/learning environment knows no boundaries. Learning can happen when you least expect it--anytime, anywhere, anyplace. SMILE, IT'S CALLED EDUCATION!

1. Carol David, "Teaching Business Communication to Adults," **The ABC Bulletin**, June 1979, p. 11

2. John A. Byrne, "Back to School: Special Report on Executive Education," **Business Week**, McGraw-Hill Publication, October 28, 1991, pp. 102-114.

3. Jane L. David, "Restructuring and Technology: Partners in Change," **Phi Delta Kappan**, September 1991, p. 38.

4. Carol David, p. 11.

5. David, p. 39.

6. John H. Ruhe, p. 23.

7. R. Wayne Pace, "An Experiential Approach to Teaching Organizational Communication," **The Journal of Business Communication**, Vol 14:4, Summer 1977, p. 37.

8. John H. Ruhe, p. 23.

9. John A. Ruhe, "Business Communications: An Experience Based Learning Approach," **The ABCA Bulletin**, March 1979, p. 22.

10. David, p. 40.